



## Educator selected for 2005 Spencer Award

by LAURA MILLER Newsletter editor

The Leopold Center will present one of the state's largest awards in sustainable agriculture to an Iowa State University professor who has been a role model for leaders in sustainable agriculture at universities throughout the nation.

Jerry DeWitt will receive the Spencer Award for Sustainable Agriculture during the 2005 Iowa Organic conference in Ames on November 14. DeWitt is the fourth recipient of the annual award and the first non-farmer to be honored.

The Spencer Award recognizes farmers, researchers and educators who have made a significant contribution toward the stability of mainstream family farms in Iowa. The award is named for Norman A. and Margaretha Spencer who farmed near

Sioux City for 40 years and includes \$1,000 from the Spencer family.

An entomologist, DeWitt has been employed by ISU Extension for 33 years, about half that time as an administrator. In 1995, he played a key role working with the College of Agriculture to establish the first faculty position dedicated to organic agriculture among the nation's land grant universities. Three times during the past 10 years, he has been interim director of the USDA's Sustainable Agriculture Research and Extension (SARE) program. He now coordinates ISU Extension's sustainable agriculture activities. In addition, DeWitt was a

**AWARD** (continued on page 4)

## Center lends support for Whiterock Conservancy

The Leopold Center is helping to launch a new nonprofit effort in west central Iowa that has an innovative board and mission, and access to an unusually large and diverse land area that will be used for research in sustainable land management practices.

Whiterock Conservancy was formed in December 2004 to manage a land donation to the state of Iowa from the Garst Family of Coon Rapids, Iowa. The first gift, a 1,290-acre tract announced in January 2005, was channeled via the Iowa Natural Heritage Foundation (INHF) until Whiterock achieves its nonprofit status from the Internal Revenue Service. Principal donors are Mary Garst and her five daughters. The six women say that more land will be donated yearly until the total gift reaches more than 5,000 acres. This is about seven square miles of land, making

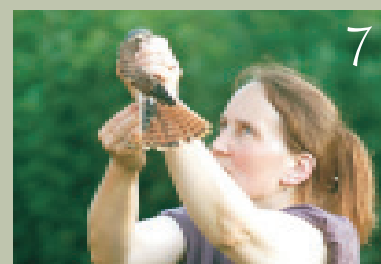
it one of the largest land donations ever made in Iowa.

Of the total planned donation, about 4,300 acres are in a contiguous tract starting in Coon Rapids and extending eight miles down the Middle Raccoon River valley into Guthrie County. Most of this property had been acquired over the years by Mary's late husband Stephen Garst, an avid conservationist and hunter. The lands contain brome grass pasture and limited crop ground (most currently enrolled in the Conservation Reserve Program), reconstructed prairies, timber, oak savanna, rare side hill seeps, and numerous fishing ponds.

The Leopold Center is one of three founding organizations with representation on the nonprofit Whiterock board.

**WHITEROCK** (continued on page 7)

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#### LEOPOLD LETTER MISSION

The mission of the Leopold Letter is to inform diverse audiences about Leopold Center programs and activities; to encourage increased interest in and use of sustainable farming practices and market opportunities for sustainable products; and to stimulate public discussion about sustainable agriculture in Iowa and the nation.

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The Leopold Center for Sustainable Agriculture seeks to identify and reduce adverse socioeconomic and environmental impacts of farming practices, develop profitable farming systems that conserve natural resources, and create educational programs with the ISU Extension Service. It was founded by the 1987 Iowa Groundwater Protection Act. The *Leopold Letter* is available free from the Leopold Center at 209 Curtiss Hall, Iowa State University, Ames, Iowa 50011-1050; (515) 294-3711.



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# News & Notes

John Carroll, professor of environmental conservation at the University of New Hampshire, has published a new book, *The Wisdom of Small Farms and Local Food: Aldo Leopold's Land Ethic and Sustainable Agriculture*. Focusing on the land grant universities, particularly in New England and the Midwest, Carroll's book provides a vision of where public land grant universities might focus in research, teaching and outreach. Carroll spent time at the Leopold Center while doing his research. The book can be ordered from the University of New Hampshire (also the publisher) by contacting Carroll at (603) 862-3940, or e-mail, [carroll@hopper.unh.edu](mailto:carroll@hopper.unh.edu).

The Leopold Center's Summer 2005 Request for Preproposals resulted in 62 submissions including 25 for the Marketing and Food Systems Initiative, 26 in the Ecology Initiative and 12 in the Policy Initiative (one preproposal was submitted to two initiatives). The Center's advisory board and staff have reviewed the preproposals and investigators for 31 projects are being asked to submit full proposals for consideration. If approved, grants for the new projects will be awarded January 2006.

Members of the Leopold Center Advisory Board elected officers at their September 7 meeting. University of Northern Iowa geography professor Tom Fogarty will be chair, with Drake University law professor Neil Hamilton as vice-chair, and northwest Iowa farmer Paul Mugge as member-at-large. Dallas County farmer Marvin Shirley had served the past two years as chair, and Fogarty as vice-chair.

A new group hopes to raise awareness about Aldo Leopold's land ethic in Burlington, Leopold's hometown. The Leopold Heritage Group is hosting a variety of events in Burlington, including a lecture October 18 by Leopold biographer Curt Meine. The Leopold Center has supported the effort by providing some copies of Leopold's landmark book of essays, *A Sand County Almanac*, for community book readings.

The group's facilitator, Jerry Rigdon, said retired University of Iowa English professor (and longtime Leopold Center board member) Bob Sayre approached

him nearly a year ago, suggesting that they do something in Burlington to honor Leopold and acknowledge how important his philosophy regarding man's interaction with nature remains today. Both Rigdon and Sayre have noted that Leopold is revered by naturalists, environmentalists and ecologists worldwide, yet has received very little formal recognition in the town where he grew up and the state in which he was born. For more information, contact Rigdon at (319) 753-2661, or by e-mail at [ledgerguy@lisco.com](mailto:ledgerguy@lisco.com).

The Leopold Center has received a supplemental grant of \$115,758 from the W.K. Kellogg Foundation to build on activities of the Value Chain Partnerships for a Sustainable Agriculture (VCPSA) project. The VCPSA project and four others nationally were selected to become part of Kellogg's new market-based change project cluster. The Kellogg Foundation has contracted with Robin Hood Consulting, a national consulting firm that works with natural and organic food businesses, to help VCPSA and its partners develop a multi-year third phase to expand and increase VCPSA's effectiveness with Iowa food and fiber businesses. The grant will end July 2006 and a proposal for a new model will be developed for the Kellogg Foundation and other funders.

A \$400,000 USDA National Research Initiative grant will link Iowa State University researchers, veterinarians and extension field specialists with niche pork producers to help them better understand and manage their herds. As part of a two-year project, Herd Health and Production Cost Management for Niche Pork, 80 swine producers will keep extensive records of their feed, facility and labor costs. The ISU Veterinary Diagnostic Laboratory will analyze healthy pigs from 40 antibiotic-free farms and sick pigs from 100 other antibiotic-free farms.

The Iowa Pork Industry Center is working with Practical Farmers of Iowa, the Leopold Center, the ISU Hoop Group, ISU Extension, University of Nebraska Department of Animal Science, Iowa Farm Business Association and companies that sell niche pork products, including Eden Natural, Niman Ranch and Organic Valley.

FROM THE

# Director



## Expanding the Scientific Mission

*As long as we see nature as passively absorbing the impacts of our interventions we will be caught by surprise by the failures of previously successful interventions.* – Richard Levins, Harvard University\*

In the late 1940s when my father first started using herbicides to control weeds in the grain crops on our farm, he was euphoric. Seeing all of the weeds dry up a few days after application, he was convinced that since no more weed seeds would be produced by the pesky plants we would have weed-free fields in a few years.

Of course that never happened. What happened, in fact, was that the less-invasive annual weeds were replaced by more invasive perennials. The war was on. More invasive weeds required more aggressive herbicides.

My father's experience serves as a metaphor for the need to re-examine how we use science in agriculture and other human enterprises. W. Joe Lewis with the Agricultural Research Service's Insect Biology and Population Management Research Laboratory in Tifton, Georgia, articulated the problem in a 1997 essay published in the *National Academy of Sciences Proceedings*:

The basic principle for managing undesired variables in agricultural systems is similar to that for other systems, including the human body and social systems. On the surface, it would seem that an optimal corrective action for an undesired entity is to apply a direct external counter force against it. However, there is a long history of experiences in medicine and social science where such interventionist actions never produce sustainable desired effects. Rather, the attempted solution becomes the problem.

### Success, at what cost?

A growing number of scientists now recognize that this linear approach to solving problems is part of our continuing fidelity to reductionist precepts of 17<sup>th</sup> century science and has proved inadequate. As Harvard ecologist Richard Levins reminds us, this approach has given us "great success in the small but failed us in the large."

This scientific approach gave us great success ridding our farm of annual weeds for one season, but failed us in our larger, long-term goal of controlling the weeds on our farm in an efficient and affordable manner. The same approach also has given us great successes in increasing yields of a few crops, but has not eliminated hunger. At the same time, this scientific approach has undermined the foundation of our productivity through soil erosion, depleted water resources and biological diversity, and consequently left us more vulnerable to natural disasters.

This is not to suggest that reductionist science should be abandoned. It continues to help us understand the functions of nature's specific parts and provides us with many technologies and engineering feats that have been extremely useful.

### Adding needed balance

However, a reductionist approach to understanding the world must be balanced with an integrated, whole systems perspective. Reductionist science led us to believe that all of the processes on a farm could be controlled because we could master them in the laboratory or short-term experiments on research plots.

But a farm is not a laboratory. It is a living organism subject to all of the emergent properties of natural systems. This more integrative science, as Lewis suggests, must "appreciate the interactive webs in ecosystems and seek solutions with net benefits at the total ecosystem level" and provide opportunities for farmers and research scientists to work together as colleagues. This approach would "focus on harnessing inherent strengths within ecosystems," rather than relying solely on therapeutic interventions to solve production problems.

If science is to help us invent a more sustainable agriculture it must move toward a more integrated model that not only attends to the immediate results of re-

engineering a plant or animal, but to all of the ecological, social and economic long-term consequences of such manipulations.

We simply can no longer afford to ignore the larger long-term failures of our short-term successes.

### Re-define progress

As Levins points out, this will require a somewhat different definition of "progress" for both scientists and farmers. Progress can no longer be interpreted simply as moving from labor-intensive to capital- and energy-intensive systems, from complex farming systems to monocultures, from small scale to large scale, from dependence on nature to control over nature, from general knowledge to specialization.

If agriculture is to become more sustainable, we need to pay more attention to the inherent strengths within nature that can serve agriculture and the farmers who practice it. We need to learn more about the self-regulating and self-renewing, interdependent and efficient properties that already exist in nature.

Learning about nature requires a re-examination of our relationship with the rest of nature. The 17<sup>th</sup> century scientific revolution taught us that nature was simply a mechanical collection of raw materials waiting to be manufactured into products and systems that exclusively serve the needs and desires of humans.

We now know that nature is a highly dynamic, living, complex, emerging organism and that we are part of that evolving community. As Aldo Leopold famously reminded us, this knowledge "changes the role of *Homo sapiens* from conqueror of the land-community to plain member and citizen of it."

A handwritten signature in dark ink, appearing to read "Leopold Kerschbaum". The signature is fluid and cursive, with a large, stylized initial 'L'.

\* From "When Science Fails Us," presented upon receipt of the Edinburgh Medal during the 1996 Edinburgh International Science Festival.



## Celebrating Iowa's garden heritage

by SUSAN FUTRELL\* *Special to the Leopold Letter*

On their way to the butter cow and the giant pumpkin, visitors to the Iowa State Fair each August stroll past tables overflowing with colorful, prize-winning fruits and vegetables, a bountiful display of the state's best produce.

Heirloom fruits and vegetables – plants and seeds that have been handed down from year to year in families and communities – had a renewed presence among the exhibits in 2005, thanks to a Leopold-Center supported project.

New competition classes for heirlooms were offered in the horticulture and food divisions at the 2005 Iowa State Fair. A display on the main floor of Agriculture Hall helped tens of thousands of fairgoers learn about the beauty, flavor and genetic diversity that heirlooms bring to Iowa's gardens and markets.

Until the mid-1900s, Iowa was a significant producer of apples, potatoes, sweet potatoes, grapes, and other horticultural crops. Muscatine melons, Hawkeye Delicious apples, and Des Moines Market squash (now known as Acorn) were sought after nationwide.

By the end of the century, farm production in Iowa was concentrated in a handful of crops such as corn, soybeans and alfalfa. Today, local produce and heirloom varieties are gaining in popularity again as chefs, gardeners and consumers learn to appreciate the tastes, shapes and colors as well as the freshness of Iowa produce. The heirloom varieties also could hold a key to future disease resistance, climate adaptations and other qualities.

One of the challenges in restoring diversity to Iowa's agricultural base is finding creative ways to teach consumers about the unique foods that can be raised here. In Iowa and many agricultural states, ideas about foods traditionally spring from state fair competitions such as "Best Tomato," "Biggest Squash" and "Blue Ribbon Apple Pie." Fair contests reach a large audience and are a wonderful, accessible and fun opportunity to showcase and celebrate heritage and local foods.

The 2005 heirloom competition drew prize-winning entries from some first-time entrants who were attracted by the new categories, and gave other long-time contestants a chance to showcase their unusual varieties. Roger Swanson of Monona won a blue ribbon in the apple category with Fameuse 'Snow' apple, an old variety. Swanson, a retired school administrator, has been raising apples since 1974. Faeth Orchards of Ft. Madison, a fifth-generation family-owned orchard operated by Lynn Faeth and his brother, won second place with a unique apple developed from a

\* Susan Futrell of Iowa City coordinated the state fair heirloom project for the Leopold Center.



Neal VanVeen from Des Moines Area Community College and retired Jasper County Extension director Gary Peterson judge apples at the state fair.

seedling in their own orchard and named Leeliscious.

The heirloom vegetable plate category was won by Ginger Werner of Chelsea, featuring Hot Portugal pepper, Ailsa Craig Onion, Bogatyr Garlic, and Amish Paste Tomato. Second place went to Sondra Feldstein, a long-time heirloom enthusiast from Bondurant, who grew Cherokee Trail of Tears beans, Klari Baby Cheese pepper, Cherokee Purple tomato, and Listad d Gandia Eggplant. Third place told a true family story: Robert C. Russell II of Des Moines entered the Mortgage Lifter Tomato, Goldy Pepper, Living Green zucchini, and a variety of garlic that has been grown by the Russell family since the 1930s.

In the Food division, judged by food folklorist Riki Salzman, a rhubarb jam made from a family recipe won a blue ribbon in the fruit preserves category for Ilene Wallace of Council Bluffs. A delicate pink rhubarb jelly from Louise Piper of Garner took second place. Ilene Wallace's spiced tomato jam was the winner in the vegetable preserves category.

Contestants, fair officials and visitors crowding the displays all testify that interest in heirlooms is on the rise. And the beauty and variety of the entries is a sure indication that in a showcase of Iowa's best, heirloom produce belongs on the blue ribbon table.

The State Fair heirloom competition was sponsored by the Leopold Center, Seed Savers Exchange, Practical Farmers of Iowa and the Alces Foundation, with additional prizes provided by University of Iowa Press.

## SPENCER AWARD WINNER RECEIVES STRONG SUPPORT FROM MANY SECTORS

AWARD (continued from page 1)

member of the Leopold Center Advisory Board from 1987 to 1997.

DeWitt also is an accomplished photographer and has visited many farms throughout Iowa, nationally and internationally. His photographs have been published in two books: *People Sustaining the Land* (Vagnetti and DeWitt, 2002) and *Renewing the Countryside-Iowa*, a 2003 project supported by the Leopold Center.

Francis Thicke, who operates an organic dairy farm and milk processing plant near Fairfield, nominated DeWitt for the award. "I have known Jerry for over 15 years and consider him to be the personification of sustainable agriculture in Iowa," he wrote. "He is a joy to work with and a constant inspiration."

Wendy Wintersteen, interim dean for the College of Agriculture, said she could think of no other faculty member at ISU more deserving of the award. "As a result of Jerry's vision, the College of Agriculture now has one of the strongest sustainable agricultural research, teaching and extension programs in the nation," she wrote in a letter of support. "His leadership has made a difference in the opportunities available to family farmers."

The award presentation will begin at 11:30 a.m. in the Scheman Building at the ISU Center. The public is invited to attend, but must register for the conference if they want lunch. For more information about the conference, contact Julie Kieffer at (515) 294-4202, [kiefferj@iastate.edu](mailto:kiefferj@iastate.edu).

## In the business of making the connections

Jerry DeWitt has a goal of visiting 25 farms every year. He even keeps a list. He's always met his goal, through 33 years at Iowa State University and more trips between Washington, D.C. and Ames than he cares to count.

When asked how many farmers he knows, DeWitt doesn't hesitate. "Not enough," he answers.

DeWitt's goal goes back to what he says is at the heart of a land grant university: helping people.

"I love being on a farm and listening to farmers," he says. "The moment they have an answer to a problem, a new insight, or they tell you they plan to think about something, you can see it in their eyes and then I know I've done my job."

DeWitt coordinates ISU Extension's sustainable agriculture programs and is passionate about helping people. He will receive the 2005 Spencer Award for Sustainable Agriculture in November during an Iowa organic conference in Ames.

One of DeWitt's strengths, cited in his nomination for the award, was the key role he played nearly a decade ago in helping ISU create a tenured faculty position that was devoted to organic agriculture, the first such position at any land grant university. DeWitt said the effort began at a committee meeting in Des Moines that included several organic farmers.

"They asked what it would take for organic agriculture to get support at ISU," DeWitt recalled. "I told them that I didn't know but that they should ask."

DeWitt organized a meeting with then-College of Agriculture Dean David Topel and ISU Extension Vice Provost Stan Johnson. Fifteen farmers showed up to make their case. As a result, two researchers eventually were hired: Kathleen Delate, with appointments in both horticulture and agronomy, would lead ISU's organic agriculture program, and Matt Liebman would work in agronomy.

"It was one of those simple things: just ask," DeWitt said. "Sometimes we worry about the process and all the 'what ifs' when we need to just ask. It was a bold move for ISU to use the O-word but it was a shining moment for a land grant university."

DeWitt also is credited with helping to make the connection that led to a unique partnership between Iowa State and Practical Farmers of Iowa (PFI). During the late 1980s, he worked with the farmer group to develop on-farm demonstrations on energy conservation. The project was funded by some of the Exxon Oil over-charge funds distributed in Iowa.

PFI members continued to do on-farm research, a paired comparisons approach that wasn't always appreciated within the scientific community. Again, they came to DeWitt with their concerns.

"I told them to write it down and that I'd take it to someone at ISU," he said. "That's all it took. Since then many ISU researchers have worked with PFI members on various projects."

DeWitt was an administrator for ISU Extension when Rick Exner was hired to oversee PFI's on-farm research program. Although Exner is an ISU employee with an office on campus, his salary is paid by PFI. The Leopold Center is the third partner in the equation, underwriting a major portion of the costs for the on-farm program.

DeWitt was hired in 1972 as an extension entomologist. In the 33 years since, he has worked with ISU Extension's Integrated Pest Management program, served as associate dean in the College of Agriculture, assistant director for ISU Extension, interim director for ISU Agriculture and Natural Resources Extension,

and state liaison for the National Sustainable Agriculture Research and Education (SARE) program of the USDA. Three times during the past 10 years he has been interim national program leader for sustainable agriculture in the SARE program, and has worked on special outreach projects for the agency.

In 1998, he took a faculty improvement leave to travel with documentary photographer and video producer Cynthia Vagnetti to record the stories of more than 35 farm and ranch families throughout the United States. The result was the 2002 book, *People Sustaining the Land*. The book includes first-person narratives of 26 farmers, black-and-white photographs taken by Vagnetti and color photography by DeWitt.

"Farmers are great teachers and I've learned so much from them," DeWitt says. "Sustainable agriculture is a wonderful combination of learning and sharing and making connections between people and the land."



*This photograph means sustainable agriculture to me. It was 108 degrees that night when I took the picture at a farm outside Jacksonville, Texas. The owner was a woman, 85 years old at the time, who didn't know what was going to happen to her farm. But she wanted to show me her heirloom peaches. This is the strongest connection between people and the land. – Jerry DeWitt*



*Top photo from People Sustaining the Land, Vagnetti and DeWitt, 2002. Bottom photo by Rich Pope.*

Mary Garst (third from left) and her daughters (left to right) Rachel, Sarah, Liz, Jen and Kate. At right is the Middle Raccoon River.



## An evolving relationship with the land

By LIZ GARST *Whiterock Conservancy Executive Director*

**T**his new conservation project reflects my family's evolving relationship with the land and what are considered appropriate uses for land. My grandfather Roswell Garst, co-founder of the Garst & Thomas Seed Corn Company, was a firm believer in the Green Revolution and importance of making every acre yield the most food. He promoted his theories worldwide, most famously to Soviet Premier Nikita Khrushchev, who became his friend and in 1959 visited him at his Coon Rapids farm.

My father Stephen continued Roswell's tradition of high-input agriculture but also was an avid hunter and fisherman, and increasingly a conservationist. He was an early supporter of erosion control measures such as waterways and no-till farming. He purchased extensive tracts of timber and pasture where he built and stocked dozens of ponds. He also helped found the Carroll County Conservation Board and was a leading force behind the Coon Rapids bike trail.

### One step further

My generation has taken things a step further to focus on biodiversity and sustainability. Iowa is the most changed landscape in the nation, with just vestiges left of the native prairie and oak savanna that once covered the entire state. Our interest is in seeking methods to restore as much biodiversity as possible, while simultaneously making a living on the land. Unless Iowa farmers have viable economic alternatives for conservation land, they will have little incentive for its protection and restoration.

Our approach to sustainability focuses on two main avenues: sustainable agricultural practices and rural tourism. By sustainable agriculture, we mean productive practices that can continue over time without depleting our natural resources.

By rural tourism, we mean using the

beauty of the land and the recreational opportunities it affords, to lure people to the area where they provide a market for local entrepreneurs. People coming to bird-watch (and bird-watchers will travel a long distance to see a specific bird) also need to buy gas, eat and sleep. They also may want to shop. Astronomers attracted by our unusually dark skies of the area also will come to visit, even to retire here.

This gives us and our neighbors a strong incentive to protect and preserve those resources. Dark sky protection is not that difficult; mostly it involves convincing neighboring communities and businesses to install lighting that is directed downwards, rather than allowing light to shoot up into the night sky.

Creating and protecting wild bird habitat is a somewhat more complicated challenge. Some birds need large tracts of unbroken woodlands; ground nesters may need protection from disturbance during nesting season. But the basic idea is the same: once you consider wildlife viewers as a market, you see wildlife as an economic asset and then you have a greater incentive to protect habitat.

Of course, none of this will work without facilities and marketing. That is where we are increasingly developing a concept of rural tourism as a community effort. One business alone cannot sustain itself or offer a diverse array of services. The person who has hunting lands needs someone with a hotel, and vice versa. Add to that a restaurant, a target range, a hunting supply store and a gift shop, and the combined offering starts to be attractive enough to keep everyone in business.

Hunters are an important potential market for rural Iowa. Increasingly, hunters are paying for access to land, or even buying conservation land outright. Land owners not only can sell hunting rights, but also market outfitting services. In the case of absentee conservation landowners,

neighboring farmers or tenants might be able to step forward to provide conservation land management services.

More interesting still is to manage land currently used for crop and/or cattle production to simultaneously support these alternative uses. Even crop land can become a tourist attraction: witness the popularity of corn mazes or horse-plowing contests. Pasture land can support field dog trials. We already have local neighbors who make a little money simply giving tours of their farms. Many city people have lost touch with the land, and will actually pay for a tour that explains modern or alternative farming.

### Multipurpose land use

Our vision of multipurpose land use has sometimes been difficult for people to grasp and it will need tweaking. At first we called Whiterock a "preserve," but the next thing we knew, we had a bird-watcher scared by curious cows. Perhaps we will erect visitor signs with tips to tell when a cow really is being a threat! Yes, a Vermillion flycatcher stayed with us this summer, but cattle are our long-term residents.

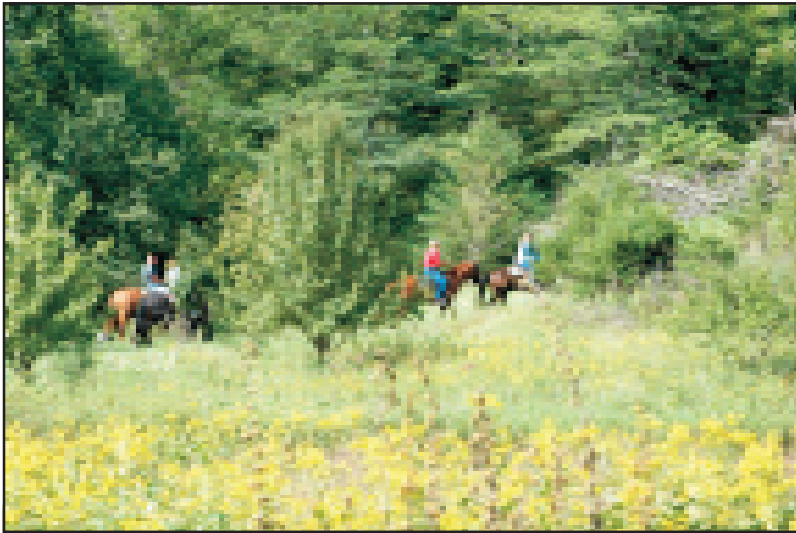
Another misconception is that Whiterock will somehow affect the tax base. With only a minor acreage exception, even the nonprofit Whiterock must pay taxes on the land. And as the Conservancy begins to generate funds for restoration via pasturing and nontraditional land uses, its tax contribution should start to rise.

We will need innovative and experienced partners in this complex process. For this reason we are pleased to be working with the Leopold Center, the Iowa Natural Heritage Foundation and the Iowa Department of Natural Resources, as well as other partners, and look forward to seeing what will emerge from this creative mix.



*Vermilion Flycatcher, native to South America and Mexico, spotted at Whiterock; Kay Neumann with an osprey; purple cone-flower on the prairie.*

## A pictorial tour of the Whiterock Conservancy



*Horseback riding is one of the many activities available at Whiterock. Vermilion Flycatcher photo by Mark Wetrich; others from Whiterock Conservancy.*



*Cattle graze near Middle Raccoon River.*

### KIRSCHENMANN LEADS WHITEROCK AS BOARD PRESIDENT

*WHITEROCK (continued from page 1)*

Fred Kirschenmann of the Leopold Center currently is board president. Also represented are the Iowa Department of Natural Resources by Mike Brandrup and the Iowa Natural Heritage Foundation (INHF) by Mark Ackleson. These three organizations control the board, which also includes Robert G. Riley, Jr., of Des Moines, as well as Liz, Rachel and Jen Garst.

Being designated as what the IRS calls a "supporting organization" to the Leopold Center, INHF and DNR, Whiterock's mission is to use its land area to support the overlapping missions of these three entities. INHF is a nonprofit conservation group that, to date, has worked with numerous Iowa landowners to protect about 80,000 acres throughout the state.

The heart of Whiterock's mission is to use its land area as an innovative experiment in multipurpose land use. The new entity aims to simultaneously 1) protect and re-

store the area's natural resources, 2) open large parts of the area for low-impact public use and environmental education, and 3) conduct research and demonstrations on land use methods that are both environmentally and economically sustainable.

Whiterock is spending most of its first year engaged in planning. Advisors throughout Iowa have been providing their time and expertise on committees that attempt to turn the new entity's mission statement into a work plan that will evolve in stages. The Leopold Center Advisory Board also has a subcommittee that will consider how the Center can work best with Whiterock.

One of Whiterock's first steps will be to coordinate multiple researchers and institutions in designing and conducting baseline research on soils, water quality, historic land use, current plant communities, and populations of birds, animals and

[www.leopold.iastate.edu](http://www.leopold.iastate.edu)

Whiterock has been named one of three "Great Places" in Iowa. More at: [www.farmresort.com/wrcmainpage.htm](http://www.farmresort.com/wrcmainpage.htm).

insects. Down the road, the results of interventions (burning, mowing, grazing) will be recorded, as well as visitor data and impacts.

As indicated by its three-part mission, Whiterock's land management, research and educational focus is on multipurpose land use, whereby the same tract might be simultaneously managed for biodiversity, agricultural income (notably grazing), paid hunting, income-generating tourism, and environmental education. A central goal is to share research data and methods with area farmers, landowners, nonprofit organizations and governmental entities as they consider their own land use practices and environmentally-friendly alternatives.



# Conference seeks to strengthen traditional public breeding programs

by LAURA MILLER Newsletter editor

With the advent of Bt corn and Roundup Ready™ soybeans, no one questions why major funding for breeding programs has gradually moved from the public to private sector. Genetic engineering – the ability to manipulate a single gene in a plant or animal – opened the door to create new products that could be marketed to many users.

As a result, traditional breeding programs that rely on selection among genetically variable populations have taken a back seat at many colleges and universities.

“Many public breeding programs have gone out of existence,” said William Tracy, who leads the sweet corn breeding program at the University of Wisconsin-Madison, one of a few such programs in the United States. “Some programs are strong because of the individual breeder, but that enthusiasm often ends when the person retires.”

Tracy was among a group of nearly 100 researchers, farmers and others interested in traditional plant and animal breeding who met in Ames September 12-14 to discuss why these programs need to be continued and even expanded at land grant universities and other public institutions. The Leopold Center helped co-sponsor the conference with the Raymond F. Baker Center for Plant Breeding at Iowa State and the Rural Advancement Foundation International (RAFI) based in Pittsboro, North Carolina.

The meeting was a follow-up to a national Seeds and Breeds Summit held in Washington, D.C., in 2003. The September conference reviewed existing breeding programs to develop strategies that could be included in the 2007 Farm Bill.

## University research wanes

Tracy developed one of the first bi-color varieties of sweet corn with a high sugar content and good germination, the forerunner to popular super-sweet varieties marketed today. Without the development of improved germplasm, which Tracy says is no longer happening at universities and in other public programs, society is losing more than just researchers.

“Food security is one of the primary reasons that plant and animal breeding should be done at our universities with public support,” Tracy said.

“Plant breeding decisions determine the future of the world’s food supply,” he said.

“Placing the world’s crop germplasm and plant improvement in the hands of a few companies is bad public policy. We need both genetic diversity and a diversity of decision-makers.”

As a result of consolidation and vertical integration, only five corporations dominate the genetics of most crops grown worldwide, according to research conducted by Mary Hendrickson and William Heffernan at the University of Missouri-Columbia. Although ownership of breeding stock is still fairly dispersed in livestock production, they found some equally disturbing trends. For example in the Holstein breed, which makes up over 90 percent of the dairy cows in the United States, more than 60 percent of the cows come from only four family lines.

## Few organic varieties

Lack of diversity in seedstock has a huge impact on organic farmer Ron Rosmann. He has few choices when buying seed for his 600-acre farm near Harlan in west central Iowa. More than 90 percent of commercial corn seed consists of genetically modified varieties or varieties developed to grow with synthetic fertilizers and pesticides not used in an organic operation. On the other hand, there are only a few varieties of certified organic corn seed on the market.

“You can’t take conventional seeds developed under specific conditions and expect them to perform under entirely different conditions,” said Rosmann, who also spoke at the conference. “It’s a significant problem, probably the biggest one we have right now.”

Rosmann and other farmers who use alternative production systems have similar challenges finding cattle and hogs suited to their needs. Newer breeds are meant to perform well on diets of grain and in large indoor facilities, rather than in the primarily outdoor pasture systems with variable weather conditions that are favored by organic producers.

For example, Rosmann feeds his hogs a mixture of barley and spring peas, a legume that eliminates the need for soybean meal. He interplants the two crops in the same field and would like to see varieties that mature at the same time.

Specialty or niche crops often are overlooked by private breeding programs, which are designed to sell large volumes of seed over a wide target area. Also miss-

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Proceedings from the 2003 Seeds and Breeds Summit is available at: [www.leopold.iastate.edu/pubs/other/files/seeds.pdf](http://www.leopold.iastate.edu/pubs/other/files/seeds.pdf). Watch the Leopold Center web site for materials from the 2005 conference.

ing are cultivars adapted to local environments because the size of the market may not support even a modest breeding program by small seed companies and farmer-breeders.

“It’s a difference of objectives,” Tracy explained. “The main objective of private corporations is to make profit for owners and investors. Public breeders are generally less concerned about sales volume and may be more interested in developing cultivars that actually reduce seed sales, such as long-lived perennials or cultivars from which the farmer may save seed such as pure lines and open-pollinated cultivars.”

## Global research needed

Internationally, the need may be even greater for public breeding programs to help increase food production. There are only five public breeders who work with bananas, a food staple grown on more than 11 million acres, and three public breeders for yams, another major food crop in Africa.

“In developing nations, public breeding programs are withering and dying,” Tracy said. “Between 1960 and 1985, food production was outpacing population growth but since 1987 we’ve just been keeping up and it actually looks like per capita food production is going down.”

He said plant and animal breeders always need to look to the future. Typically, there’s a seven- to 10-year delay from research lab to commercial introduction of new plants or animal breeds.

“By predicting the future, we create the future and breeders need to be more involved in discussions about the future and what’s needed by farmers and desired by consumers,” he said. “We need to be reinvigorated about our own sense of mission and re-connecting with the people who need it most, which is the mission of the land grant university.”



## Chef's tales for the dinner table

### Blue Hill at Stone Barns Restaurant

New York City chef and restaurant owner Dan Barber says his job is one part cooking and two parts storytelling. And he'd like that story to include the farmer as well as the person who developed the plant or animal.

"When it comes to buying food, who we are and how we feel makes a big difference," Barber told participants at the Seeds and Breeds conference in Ames in September. "We go to great lengths to find food we know something about and when you know the story, the food tastes better. The story is a seasoning that I simply can't provide."

Barber operates the Blue Hill restaurant in Manhattan, and has been named one of the nation's top new chefs by *Food and Wine* magazine, *Gourmet* and *Bon Appétit*. In May 2004 he opened a second Blue Hill restaurant at the Stone Barns Center for Food and Agriculture in Pocantico Hills about 30 miles north of New York City.

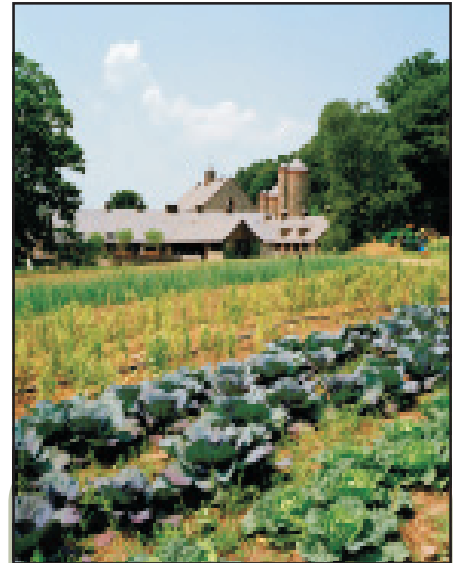
The Center is located on 80 acres that had been part of the Rockefeller estate. It is named for the barns built in the 1920s

to house dairy cattle so that the Rockefeller family could have fresh milk. The Center was established in 2003 to provide education and outreach, the barns were remodeled and adjoining land was turned into a working farm. The farm has a half-acre greenhouse where more than 40 kinds of produce are raised and 22 acres of pasture for sheep, Berkshire hogs, turkeys and chickens.

Barber said 78 percent of all food served in the restaurant comes from the Stone Barns Farm or farms within 150 miles. Both the restaurant and farm are set up to be self-sustaining, so much of the produce and livestock is sold at a weekly farmers market, and to other restaurants and a community supported agriculture enterprise.

He said he walks the farm every week to find out what is available. Servers also meet regularly with farm managers and cooks often harvest right from the garden.

"We don't just grow garlic, we grow garlic from an Italian family that's been growing it for generations," Barber said. "It's very sweet and our produce manager received it as a gift from a family member who decided not to grow it anymore, the



*Dan Barber's Blue Hill restaurant (in the background) gets most of its vegetables from this garden and a greenhouse.*

*Photo courtesy Stone Barns Center.*

first gift to anyone outside the family. The customers begin to taste family, traditions and Italy when they eat this garlic."

### The Farmers Diner

Local food also has been a key to success for farmer and entrepreneur Tod Murphy. Murphy visited Iowa in July to share his insights from three years of operating the Farmers Diner, a 50-seat restaurant in Barre, Vermont (pop. 9,300).

During peak season, Murphy said 70 to 80 percent of the food served in his restaurant came from within 70 miles. When he opened the diner in 2002, his goal was to have 40 cents of every food dollar go to local farmers and food processors, and the overall average has been about 65 cents.

In August, Murphy temporarily closed the popular diner to set up a nonprofit organization that will operate as a holding company to manage the restaurant. He said the group also plans to develop a regional brand of Vermont smoked and cured ham and offer educational programs about local foods. Murphy said he expects to re-open the diner in October but with a limited menu for only two meal periods a day (breakfast and lunch) from Tuesday through Saturday.

"We found that the Barre restaurant is too small to be profitable as a stand-alone



*Chip Conquest (left) and Tod Murphy from the Farmers Diner explained their business model to packed audiences in Ames in July. The Leopold Center and the Drake University Agricultural Law Center sponsored their visit.*

enterprise," he explained. "But it's where we want to be - in a small, rural community supporting farmers and other businesses. Realistically, we need a 150-seat diner in a town two or three times the size of Barre."

He said the group plans to open a second diner in summer or fall of 2006 about an hour away in Lebanon, New Hampshire, and to expand to the Boston area within two years. He said he's had numerous inquiries from other regions including Iowa, California, New York, Chicago and the Twin Cities.

"People like the idea of a restaurant serving mostly locally grown food with the profits staying in the community," he said. "We feel confident that we could go into

any of these regions and find investors willing to commit half or even two-thirds of the funds needed to open a diner."

He said the nonprofit status allows more flexibility in finding capital without the pressure to generate high returns required by most for-profit ventures. Murphy also is developing a "playbook" that outlines how much local support (finances and farmers) would be needed to open other diners.

Murphy heads the operations team that includes four full-time and two part-time employees. The Barre restaurant employed about 15 people (both full- and part-time), of which three plan to return when the restaurant re-opens.

# Triticale, a versatile crop for Iowa growers

by SUSAN THOMPSON ISU College of Agriculture Communications Service

**T**riticale may have possibilities as a third crop, both for its environmental advantages and ability to provide feed in the form of forage or grain.

"Triticale provides valuable soil conservation and nitrogen capture benefits in fall and spring," said Lance Gibson, associate professor of agronomy. "It captures from 50 to 150 pounds of nitrogen per acre that might otherwise be lost to the environment. It also provides protection from soil erosion during April, May and June - a period when corn and soybean fields are the most vulnerable to erosion."

Gibson coordinated four years of research on triticale, (pronounced trit-ah-kay-lee), by a multi-disciplinary team. The research included variety testing and development; planting and nitrogen fertility management; rotation options with corn, soybean and forage legumes; swine feeding trials; and economic analysis. The research was funded by the Leopold Center and the ISU Agronomy Endowment.

Triticale is a cross between wheat and rye. It has greater yield potential than wheat, but does not contain the traits necessary for bread production. In Iowa, it can be grown as forage and for grain.

## Low production costs

Gibson said triticale production costs are low, requiring 2.5 times less energy per bushel to produce than corn. Another positive is that it offers a new rotational crop.

Variety selection and purchase of certified seed are important for getting suitable results with triticale, Gibson said. "Winter triticales produce greater yields and have less disease problems than spring triticales. Out of more than 50 varieties tested by ISU researchers, 11 winter varieties and one spring variety have been identified as

suitable for grain production in Iowa," he said.

A new triticale variety developed jointly by researchers at the University of Nebraska and Iowa State was released in 2004. "This is the first triticale variety developed specifically for Iowa," he said. "It produces excellent forage yields and has 20 percent greater grain production than other varieties tested in Iowa."

## New variety available

Gibson said seed for this new variety, known as NE426GT, is commercially available for planting this fall. The Iowa State researchers working with triticale the past four years determined planting before Sept. 25 in northern Iowa and Oct. 5 in southern Iowa results in the best dry matter production and highest grain yield.

Triticale produces higher quality forage than rye and greater forage yields than wheat. Because it contains "awns," which are thin projections from the head similar to bearded barley and wheat, triticale should be harvested for forage before it heads out. Gibson said harvesting triticale as forage in southern Iowa in late May can yield up to 3 tons per acre of dry matter at 15 percent protein. "Harvesting in late May would allow a producer to then plant a soybean crop with nearly full yield potential," he said. If winter triticale is planted for grain, harvest would occur in mid-July.

Swine-feeding trials showed disease-free triticale grain has a feed value similar to corn. "Swine rations based on triticale required less soybean meal and dicalcium phosphate than corn-based rations, which reduced feeding costs," Gibson said. "However, pigs on triticale took a few more days to reach market maturity than if they were corn-fed."

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Triticale feeding recommendations are outlined in a new ISU Extension publication, *Feeding Small Grains to Swine*, available at [www.extension.iastate.edu/Publications/PM1994.pdf](http://www.extension.iastate.edu/Publications/PM1994.pdf). This publication also lists recommended varieties.

Grain triticale feeding trials with beef steers also are planned at ISU.

Gibson said researchers found triticale is best suited to the lower humidity conditions of western Iowa. "While yield levels have been similar in western and eastern Iowa, western Iowa has less probability of Fusarium head blight infection," he said.

Nitrogen management as it relates to triticale was studied for two years at the Armstrong Research and Demonstration Farm in southwest Iowa and also near Ames. Gibson said optimum grain yields after corn or soybean required no added nitrogen fertilizer at the southwest Iowa location. But the central Iowa results suggested 30 pounds of nitrogen be added in early spring for triticale grown after corn or soybean to produce the best yield.

## The down side

While Gibson believes Iowa producers should consider triticale as a new option in their crop rotation, he admits there are some negatives to consider.

"Like barley and wheat, triticale is susceptible to infection by Fusarium head blight, which may cause swine to refuse to eat the grain," Gibson said. "We had widespread problems with Fusarium in 2004 when conditions were warm and wet during flowering and early grain development." Fusarium-infected grain must be tested for mycotoxins and fed to ruminant animals or blended with Fusarium-free grain when fed to swine.

Researchers also experienced variable yields, with less than 50 bushels per acre in the wet conditions of 2004 to more than 100 bushels per acre in the cool, dry conditions of 2003.

Gibson said there is one more thing for Iowa producers to keep in mind. "Triticale is recognized as a forage crop in the current farm program, but not as a grain crop. So there are no loan deficiency payments for triticale grain," he said.

*Lance Gibson shows the genetic diversity of different triticale varieties. The variety on the left is nearly twice as tall as the variety on the right.*



# Researchers study nature's "little hammers"

by LAURA MILLER Newsletter editor

Iowa State University researchers are studying how a small but plentiful mammal may play a big role in controlling weeds for Iowa crop farmers.

The weed management star is the prairie deer mouse, *Peromyscus maniculatus*.

Just over 6 inches in length (including its 3-inch tail), the prairie deer mouse has a dusky brown coat and white feet. Although suited to many habitats throughout North America, it prefers open spaces such as crop fields, which is how this little guy has found notoriety of sorts in a Leopold Center-funded study on weeds.

Like its cousin, the white-footed mouse that prefers field edges, the prairie deer mouse eats weed seeds. Also like the white-footed mouse, the prairie deer mouse does not hibernate, remaining active throughout the winter months.

## Year-long activity

"These guys are working hard, every day around the clock," said Brent Danielson, a mouse biologist from the ISU Department of Ecology, Evolution and Organismal Biology. "We found that they're out there in significant numbers and that they're active all the time."

Danielson said that although they know mice are major consumers of weed seeds during the summer, the greatest period of vulnerability for weed seeds may be the period between harvest and spring planting. "We hope to learn more about how different crop types, tillage methods and rotations may affect winter mouse abundances and their diets," he said.

The research is part of a larger project that began in November 2002 on the ISU Marsden Farm in eastern Boone County funded by a competitive grant from the Leopold Center Ecology Initiative. ISU agronomists Matt Liebman and Bob Hartzler set up 36 plots, each 60 x 275 ft., to study the effects of different crop management systems on velvetleaf and giant foxtail.

The study includes three rotations:

- a conventional two-year system (corn-soybean)
- a three-year system suitable for producers with a need or market for small grains (corn-soybean-triticale underseeded with red clover), and
- a four-year system suitable for producers with livestock on forage (corn-soybean-triticale underseeded with alfalfa-alfalfa for hay).

Each phase of each rotation occurs every year. During the past two cropping seasons, measurements have been taken to determine weed seed longevity in the soil, weed seedling emergence and survival, weed seed production, and weed seed loss to insect and animal predators.

Predation losses were determined by lightly gluing giant foxtail and velvetleaf weed seeds onto squares of sandpaper. The squares were placed throughout the fields for 48-hour periods between May and November each of the past two years. After each card was collected, researchers counted the number of seeds left on the card. Some of the cards were placed in cages designed to keep out the mice and other vertebrates.

## Primary seed predators

"Our preliminary data suggest that mammals may strongly affect losses of weed seeds," Danielson said. "When the rodents are allowed to forage for weed seeds, they can consume more than 40 percent of the seed in a single night."

Averaged over 27 sampling periods in 2003 and 2004, about a third of the velvetleaf seeds and half of the giant foxtail seeds were lost to predators within two-day periods. In 2003, the loss of velvetleaf seeds to predators was greater in the four-year rotation than in the two-year rotation.

Andrew Heggenstaller, an agronomy graduate student who worked in the predation study, said predator activity depends on the rotation and time of year.

"Optimally, you want to provide a longer opportunity for seed removal during the season by having a diversity of crops that comes from a longer rotation,"



Brent Danielson holds a white-footed mouse at a field day.

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ISU Extension field economist Craig Chase has calculated costs and returns for the three cropping systems averaged over two seasons. You might be surprised at the results. Go to: [www.leopold.iastate.edu/pubs/nwl/2005/2005-3-leoletter/weeds.htm](http://www.leopold.iastate.edu/pubs/nwl/2005/2005-3-leoletter/weeds.htm)

he said. "In corn and soybean crops the demand for weed seeds by predators is highest only during the middle of the summer. The triticale and alfalfa provide a better season-long habitat for predators."

## Long-term effects

One concern about more diversified cropping systems is the influx of annual weeds in the three- and four-year rotations when red clover and alfalfa are grown with the small grain crop. Paula Westerman, a research associate in the ISU Agronomy Department, used data collected in the study to model long-term effects of management and seed predation on weed seedbanks.

"In the absence of seed predation, velvetleaf populations should go down. Giant foxtail, however, can increase if seeds are not consumed by rodents and insects," Westerman said. "In these fast-growing weed populations, seed predators have tremendous impacts. A 25 percent loss of weed seeds due to predators may be enough to reduce population increases in giant foxtail populations. In other words, predation can reduce the risk of weeds."

Liebman said he is pleased with the preliminary results, and compares the combinations of weed management tactics and ecological processes to "many little hammers." He explained: "In sustainable farming systems, individual weed management techniques and ecological processes are usually inadequate for suppressing weed populations. However, combinations of tactics and processes like seed predation can get the job done. We call this approach 'many little hammers' to contrast it with the usual 'big hammer' approach: heavy reliance on herbicides."

Leopold Center funds will support a third season of the Marsden Farm crop rotation project. Additional funds have been secured from the USDA-National Research Initiative competitive grants program and the ISU Agronomy Department Endowment.





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## Marketing projects highlighted Dec. 8

The public is invited to learn what's happening in local and regional food systems at a December 8 workshop in Ames. The workshop will feature progress reports from more than 25 projects that are being funded, in part, by the Leopold Center Marketing and Food Systems Initiative and the Regional Food Systems Working Group (also coordinated by the Center).

The workshop will be held at the Gateway Conference Center, running from 8:30 a.m. until 3:30 p.m. For registration information, see the Leopold Center web site: [www.leopold.iastate.edu](http://www.leopold.iastate.edu).

# Highlight Events

## Oct. 19 lecture focuses on farms as habitats

One of Iowa's emerging leaders in ecology, land conservation and agriculture will discuss the need to connect farms with their environments October 19 on the Iowa State University campus in Ames.

Laura Jackson will present "The Farm as Natural Habitat" at 7 p.m. in the College of Business auditorium, 1148 Gerding. Her presentation is part of the 2005 Shivvers Memorial Lecture in memory of John Shivvers who farmed near Knoxville.

Jackson is a biology professor at the University of Northern Iowa in Cedar Falls. She and her students currently are studying how to add wildflower species to grass-dominated prairie plantings. These techniques could be applied to roadsides, CRP fields and rotationally grazed pastures.



Laura Jackson

In 2002, she co-edited a book of essays, *The Farm as Natural Habitat: Reconnecting Food Systems to Ecosystems*, with her mother, Dana L. Jackson, senior program associate for the Land Stewardship Project in White Bear Lake, Minnesota. Jackson's father Wes is president of the Land Institute in Salina, Kansas.

Jackson has served on the Leopold Center advisory board since 2003. She has a Ph.D. in ecology and evolutionary biology from Cornell University and has been a member of the UNI faculty since 1993.

A reception will follow the lecture. Parking is available at the East Campus Parking Deck east of the Gerding building.